

What is Claimed is:

1. A device for delivering a dose of radiation comprising:

a stent for insertion into a vessel of a body comprising a generally tubular structure having an inner diameter and an outer diameter; and

5 a foil sheet formed into a coil and located adjacent the stent, wherein the foil sheet comprises a radioactive material.

2. The device of claim 1, wherein the foil sheet is located adjacent the outer diameter of the stent.

3. The device of claim 2, wherein the stent and the foil sheet are radially expandable, such that radially expanding the stent causes the foil sheet to radially expand and contact the vessel.

10 4. The device of claim 1, wherein the radioactive material is palladium-103.

5. The device of claim 1, wherein the radioactive material is carrier free palladium-103.

15 6. The device of claim 1, wherein the foil sheet is a woven screen.

7. The device of claim 1, wherein the foil sheet further comprises a bio-absorbable material that can be absorbed into the body.

8. The device of claim 1, wherein the foil sheet includes two sides, and the foil sheet further comprising a titanium coating on at least one of the sides of the foil sheet.

20 9. The device of claim 1, wherein the foil sheet further comprises a dosage of a drug.

10. A device for delivering a radioactive dose to a treatment zone, which device is suitable for insertion into a human or animal body, the device comprising:

a flexible substrate comprising a therapeutic dose of a material selected from the group consisting of a radioactive material and a drug, and wherein said flexible substrate can be conformed to an area of the body in the treatment zone.

11. The device of claim 10, wherein said flexible substrate provides substantially no support to the area of the body to which it conforms when it is conformed to the area of the body in the treatment zone.

12. The device of claim 11, wherein the flexible substrate is an expandable device capable of expanding to provide a device of a predefined geometric shape which conforms to an area of the body in the treatment zone while permitting flow of fluids therethrough.

13. The device of claim 11, wherein the flexible substrate is a flexible foil sheet.

14. The device of claim 13, wherein the flexible foil sheet is a sleeve of elastically deformable material which will expand by virtue of the expansion of a stent or other supporting device from within the sleeve.

15. The device of claim 10, wherein the radioactive material is palladium-103.

16. The device of claim 15, wherein the radioactive material is carrier free palladium-103.

17. The device of claim 13, wherein the foil sheet is selected from the group consisting of a woven screen and a mesh.

18. The device of claim 13, wherein the foil sheet further comprises a bio-absorbable material that can be absorbed into the body.

19. The device of claim 13, wherein the foil sheet comprises two sides and a titanium coating on at least one of the sides.

20. The device of claim 13, wherein the foil sheet further comprises both a radioactive material and a drug.

21. The device of claim 13, wherein the foil sheet further comprises a  
10 mechanical attachment for securing the foil sheet in position in the treatment  
zone.

22. The device of claim 21, wherein the mechanical attachment is selected from the group consisting of adhesives and suturing.

23. The device of claim 13, further comprising a support which assists in  
15 conforming the foil sheet to an area of the body and maintaining the foil sheet  
in position in the treatment zone during treatment.

24. The device of claim 13, wherein the foil sheet is positioned in the treatment zone adjacent the outer diameter of a stent.

25. The device of claim 24, wherein the stent and the foil sheet are radially  
20 expandable, such that radially expanding the stent causes the foil sheet to  
radially expand and conform to an area of the body.

26. A method for inserting a flexible substrate comprising a therapeutic amount of a material selected from the group consisting of a radioactive

material and a drug, into a treatment zone in a human or animal body comprising the steps of:

associating the flexible substrate with an insertion device;

inserting the insertion device into a human or animal body;

5       positioning the flexible substrate at a desired position within the treatment zone; and

conforming the flexible substrate to an area of the body located within the treatment zone using said insertion device.

27.   The method according to claim 26, the step of conforming the flexible  
10       substrate to an area of the treatment zone is accomplished by an insertion device selected from the group consisting of an expandable catheter and a stent.

28.   The method according to claim 27, wherein the flexible substrate is located adjacent the outer diameter of the expandable catheter or stent.

29.   The method according to claim 28, wherein the flexible substrate is  
15       radially expandable, such that radially expanding the expandable catheter or stent causes the foil sheet to radially expand.

30.   The method according to claim 26, wherein the radioactive material is palladium-103.

31.   The method according to claim 26, wherein the radioactive material is  
20       carrier free palladium-103.

32.   The method according to claim 26, wherein the flexible substrate comprises a material selected from the group consisting of a woven screen and a mesh.

33. The method according to claim 26, wherein the flexible substrate further comprises a bio-absorbable material that can be absorbed into the body.

34. The method according to claim 26, wherein the flexible substrate comprises two sides, and a titanium coating on at least one of the sides.

5 35. The method according to claim 26, wherein the flexible substrate is a sleeve of an elastically deformable material which is expandable and the step of conforming the foil sheet to an area of the body comprises the step of expanding an internal support for the flexible substrate to conform the foil sheet to an area of the body and to maintain the flexible substrate in position in the  
10 treatment zone.